



***You Can't Have
the New Economy
Without
The Old Economy***

**4th Industrial Energy Efficiency
Symposium & Exposition**

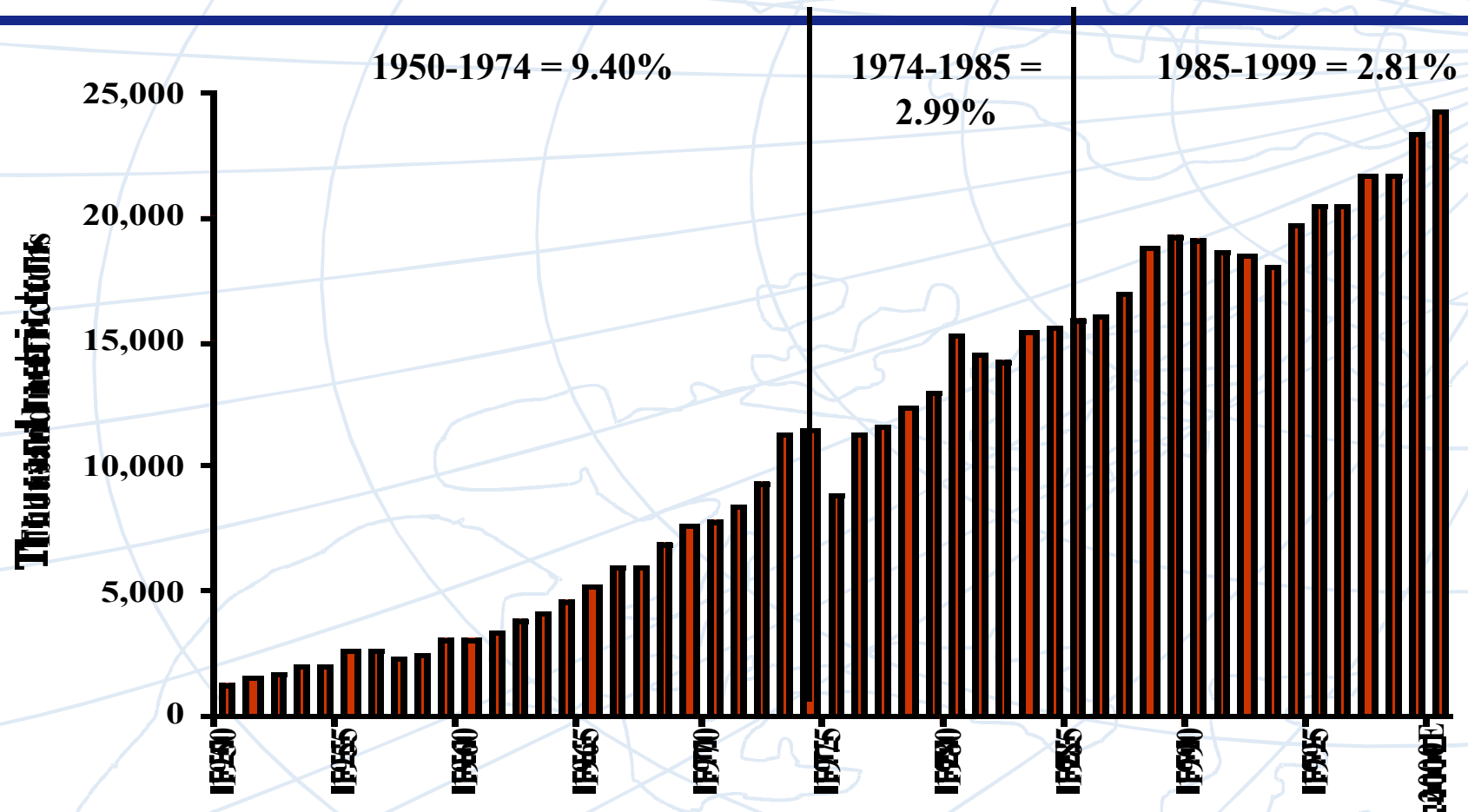
***Daniel A. Roling, CPA, CFA
February 21, 2001***

The Changing Demand Picture

Global Consumption Trends: 1950 - present

Global Aluminum Consumption

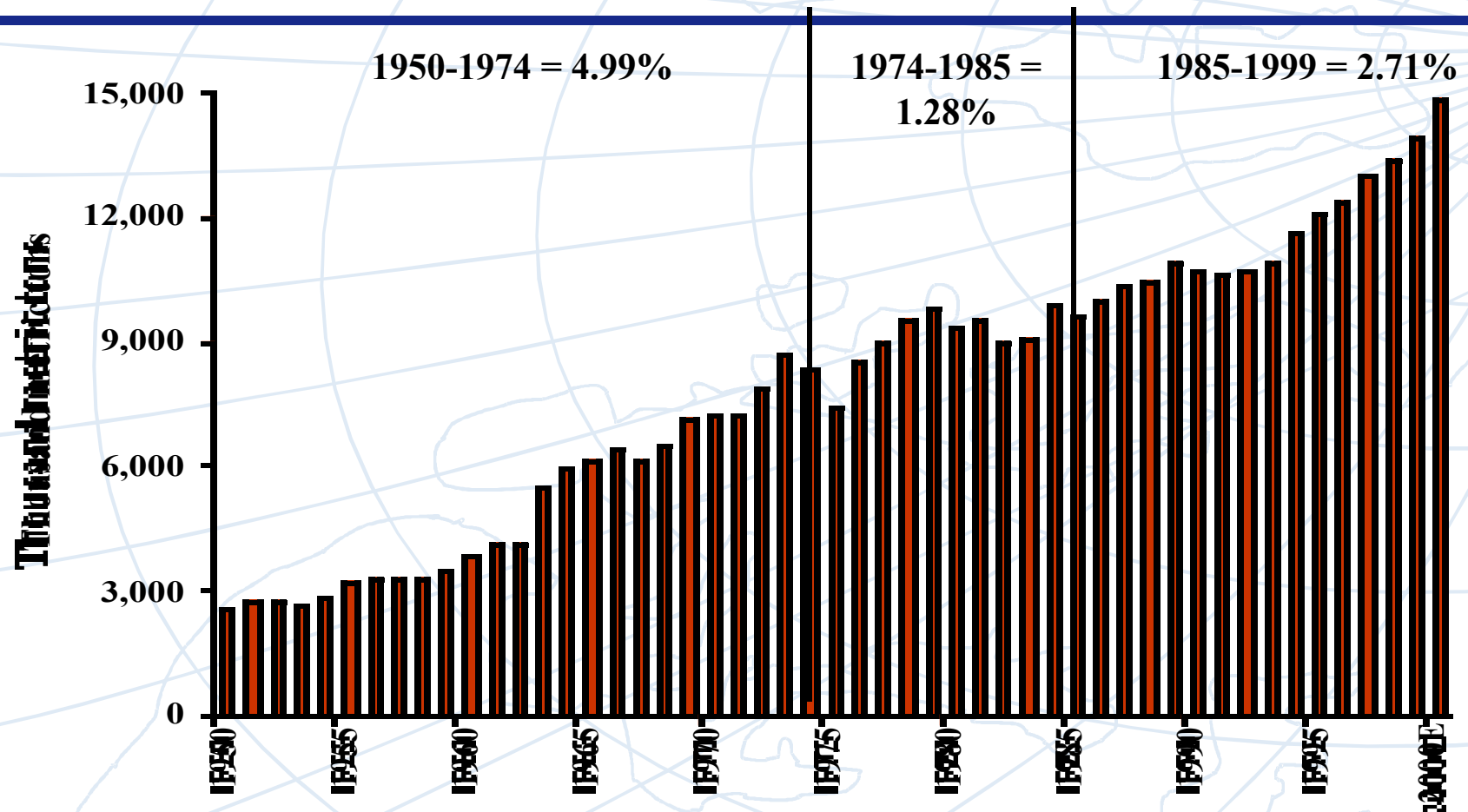
1950-1999 CAGR: 6.0%



Source: Metallgesellschaft AG, WBMS, Merrill Lynch

Global Copper Consumption

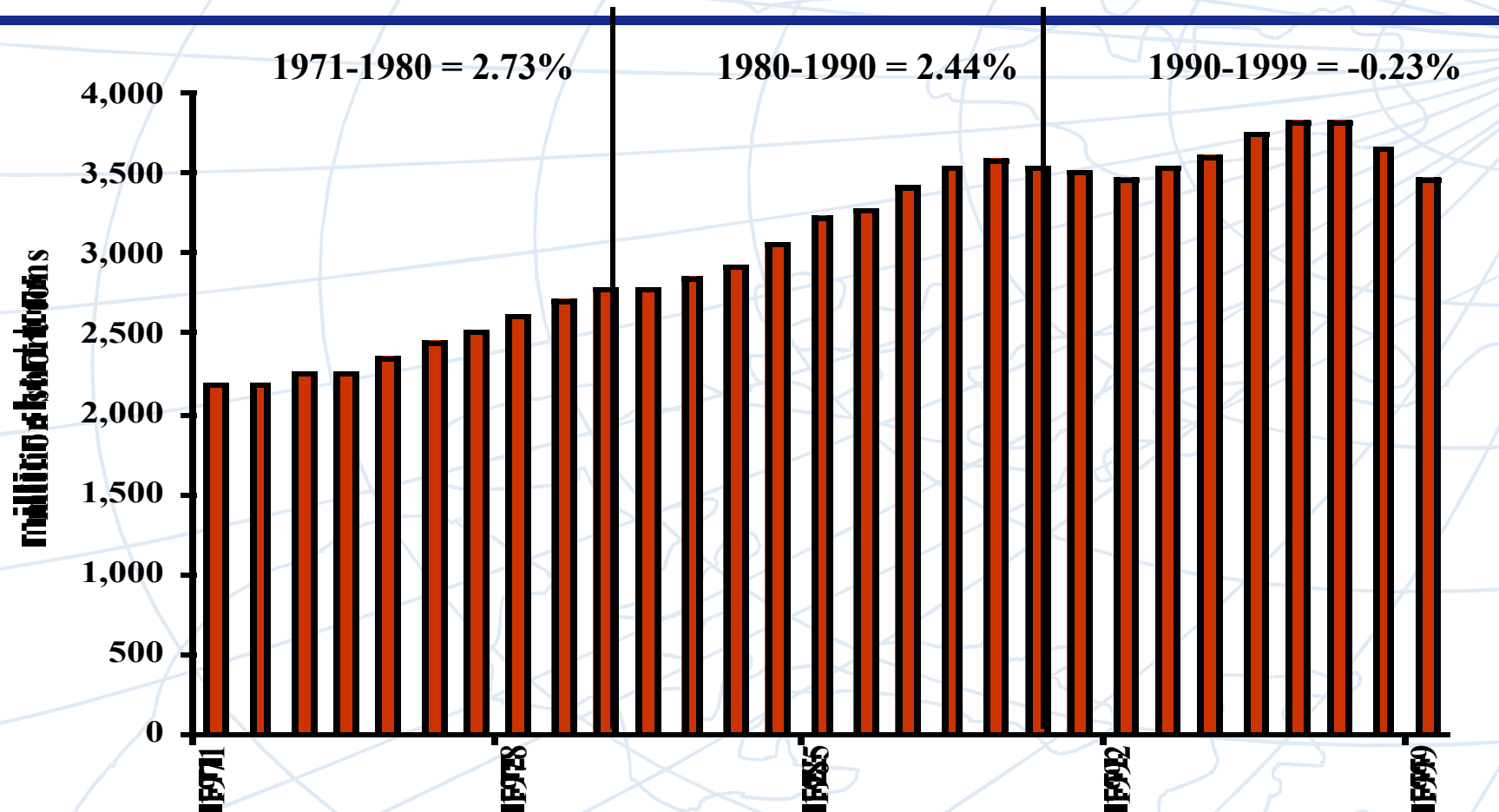
1950-1999 CAGR: 3.5%



Source: Metallgesellschaft AG, WBMS, Merrill Lynch

Global Coal Consumption

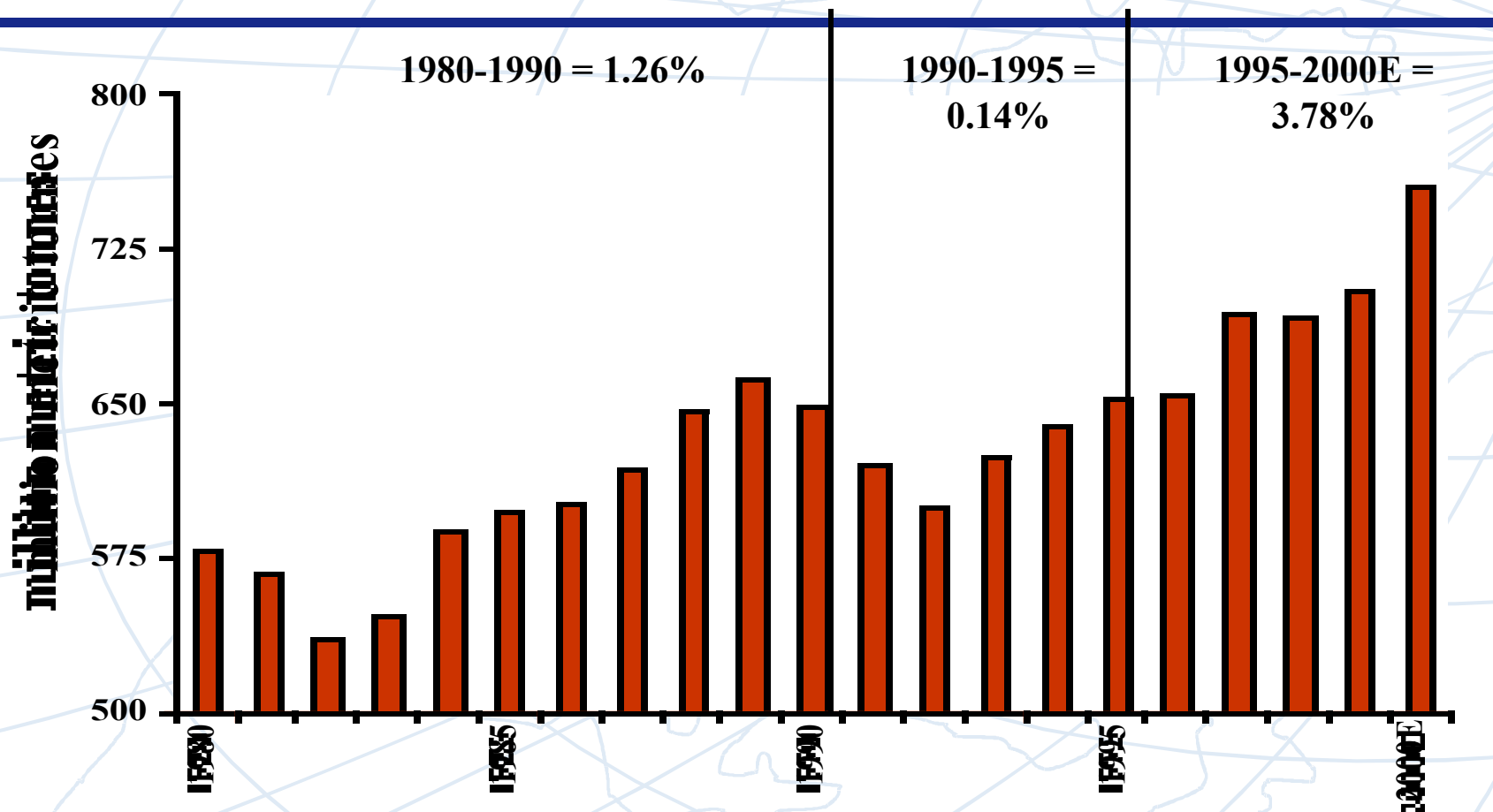
1971-1999 CAGR: 1.7%



Source: IEA Statistics - Coal Information 2000

Global Steel Consumption

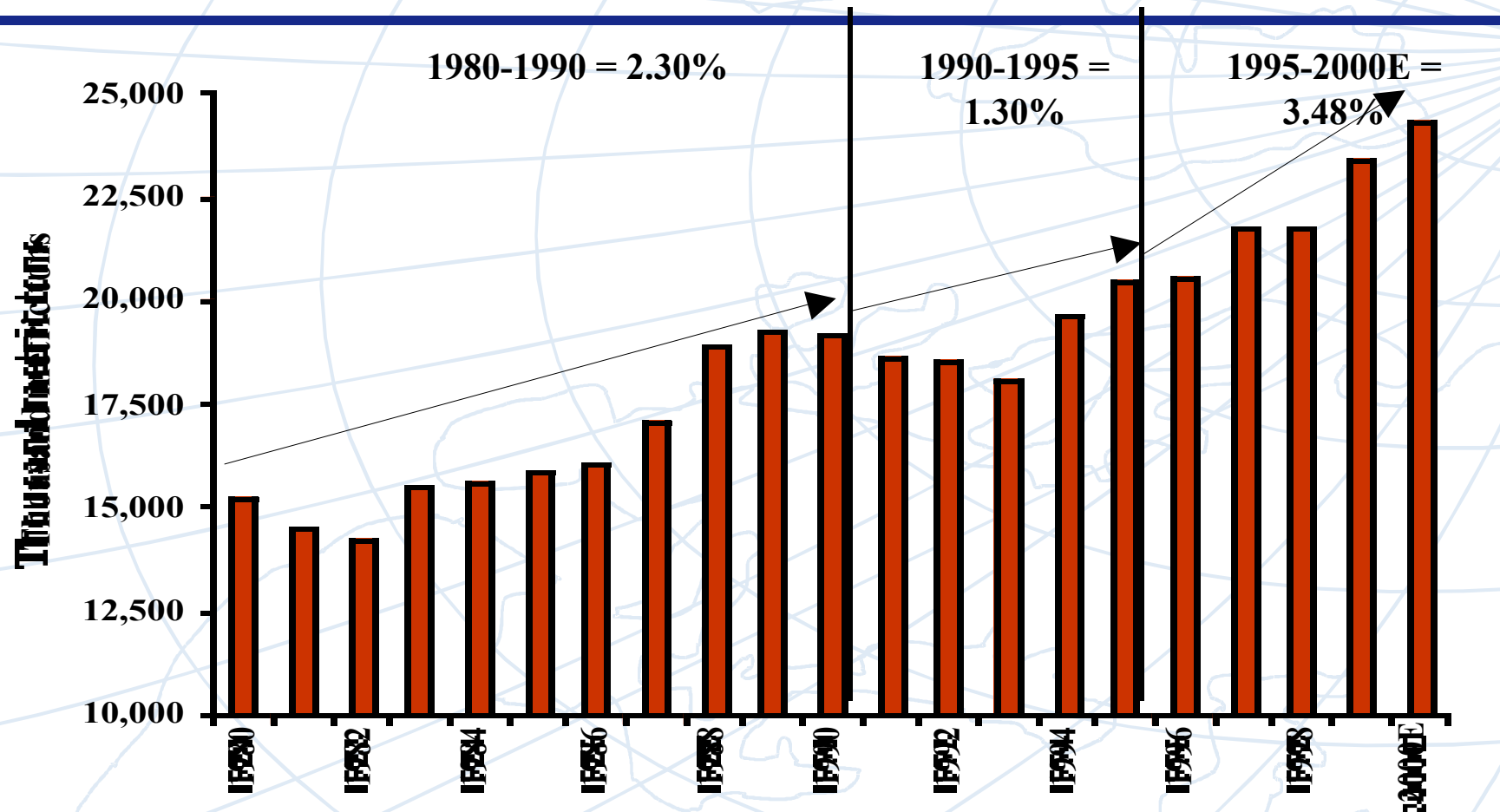
1980 - 2000E CAGR = 1.34%



Source: IISI; Merrill Lynch estimates

Global Aluminum Consumption

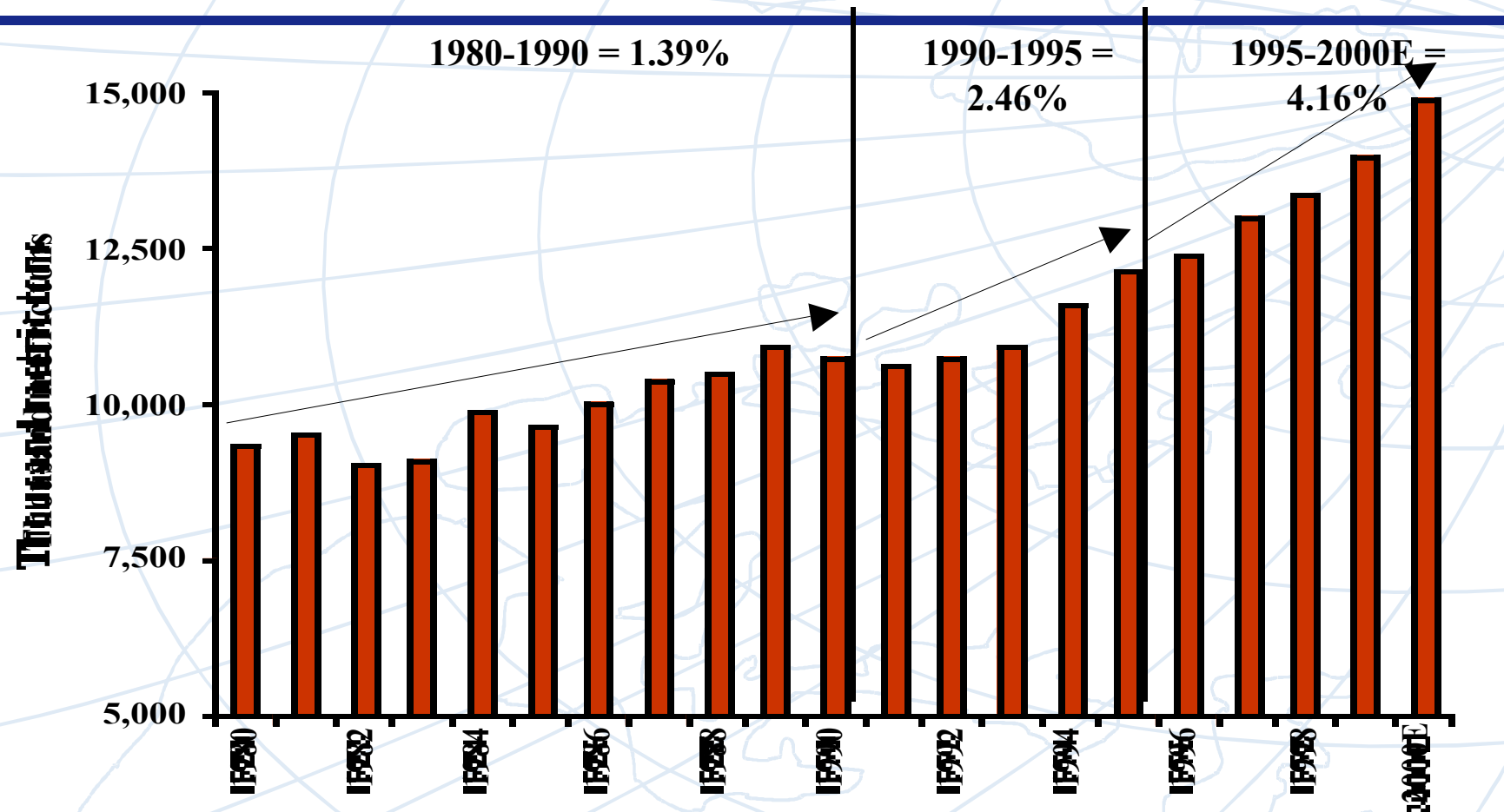
1980-2000E CAGR: 2.34%



Source: WBMS, Merrill Lynch

Global Copper Consumption

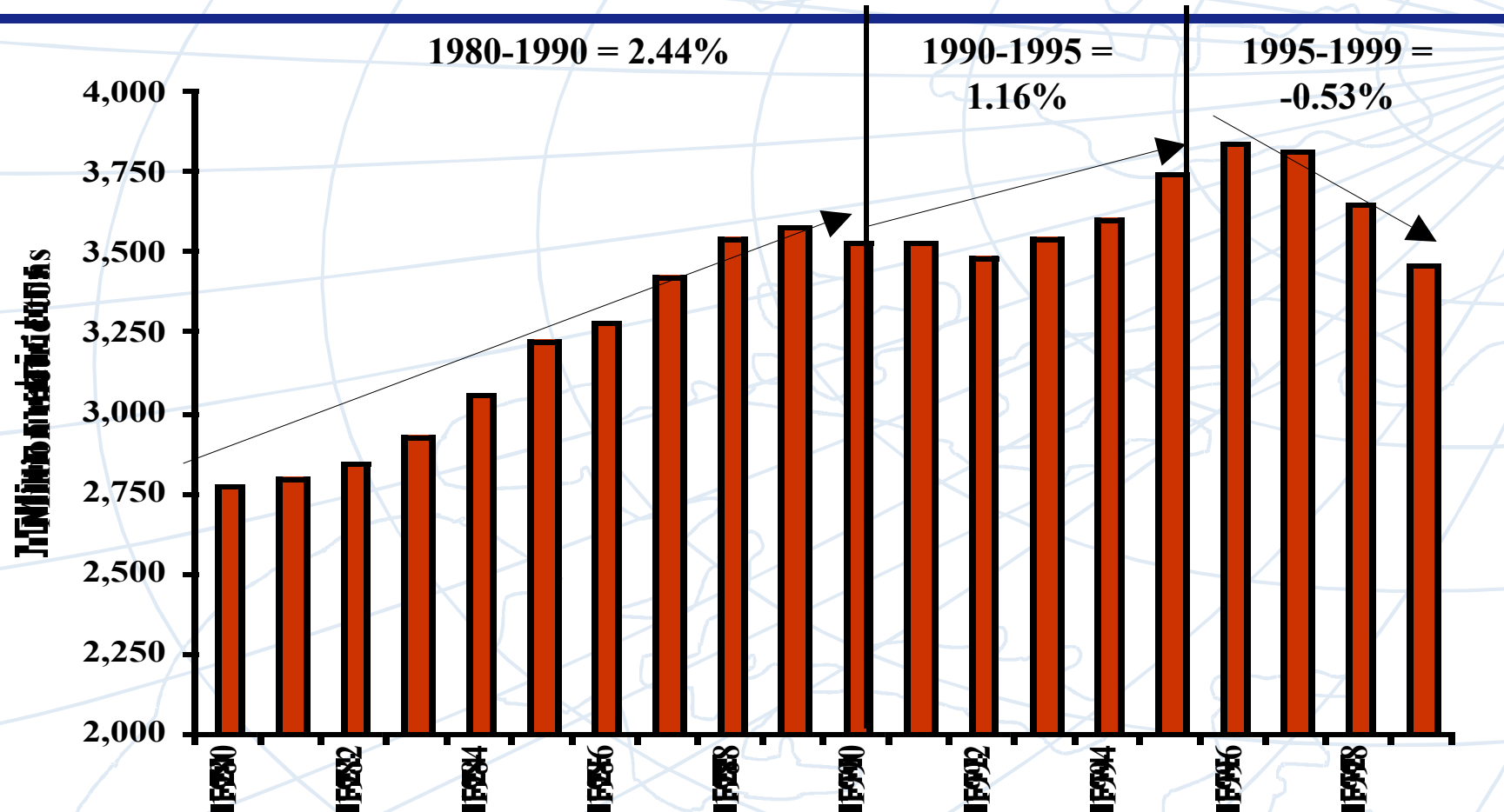
1980-2000E CAGR: 2.34%



Source: Metallgesellschaft AG, WBMS, Merrill Lynch

Global Coal Consumption

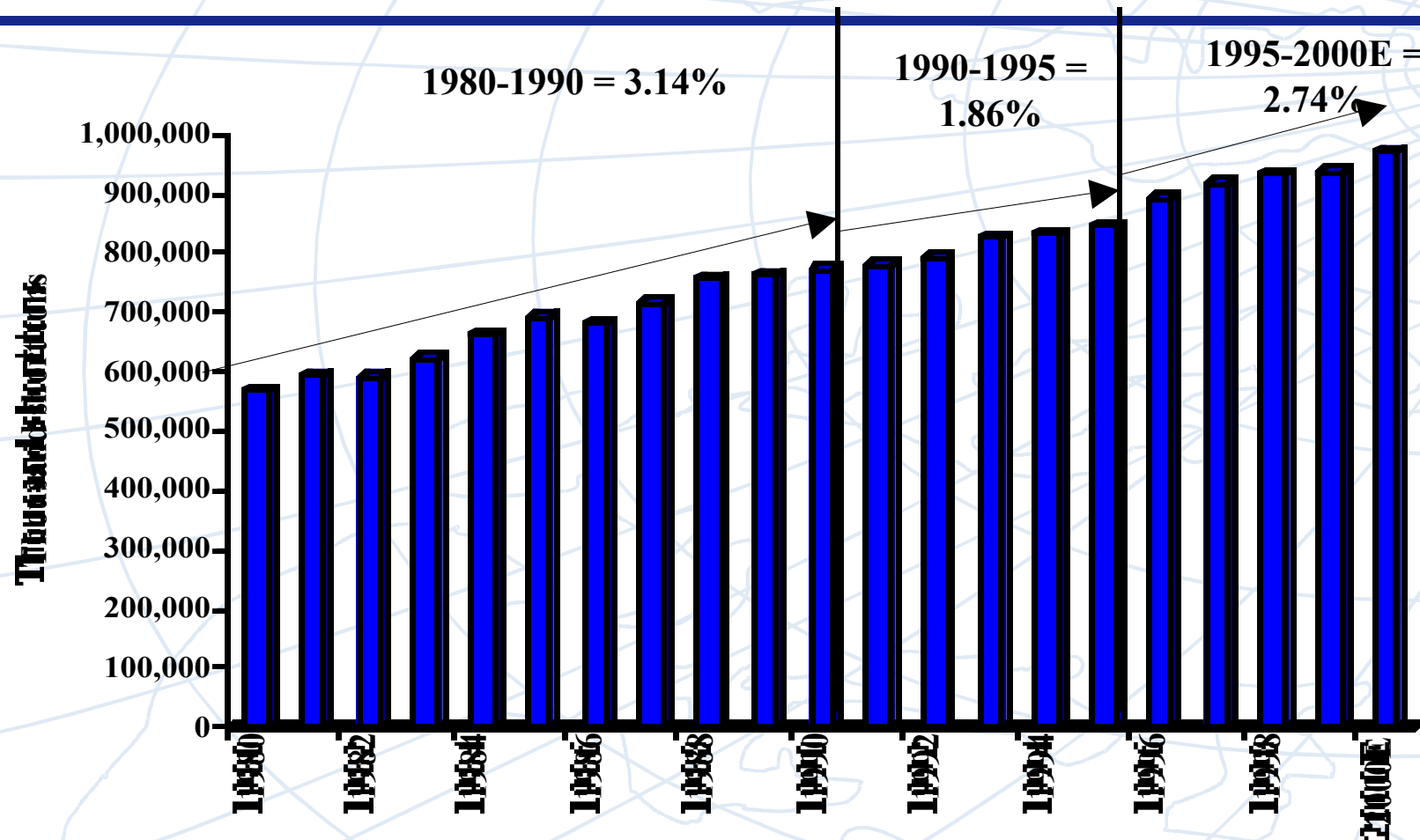
1980-1999 CAGR: 1.17%



Source: IEA Statistics - Coal Information 2000

U.S. Coal Consumption By The Electric Power Sector

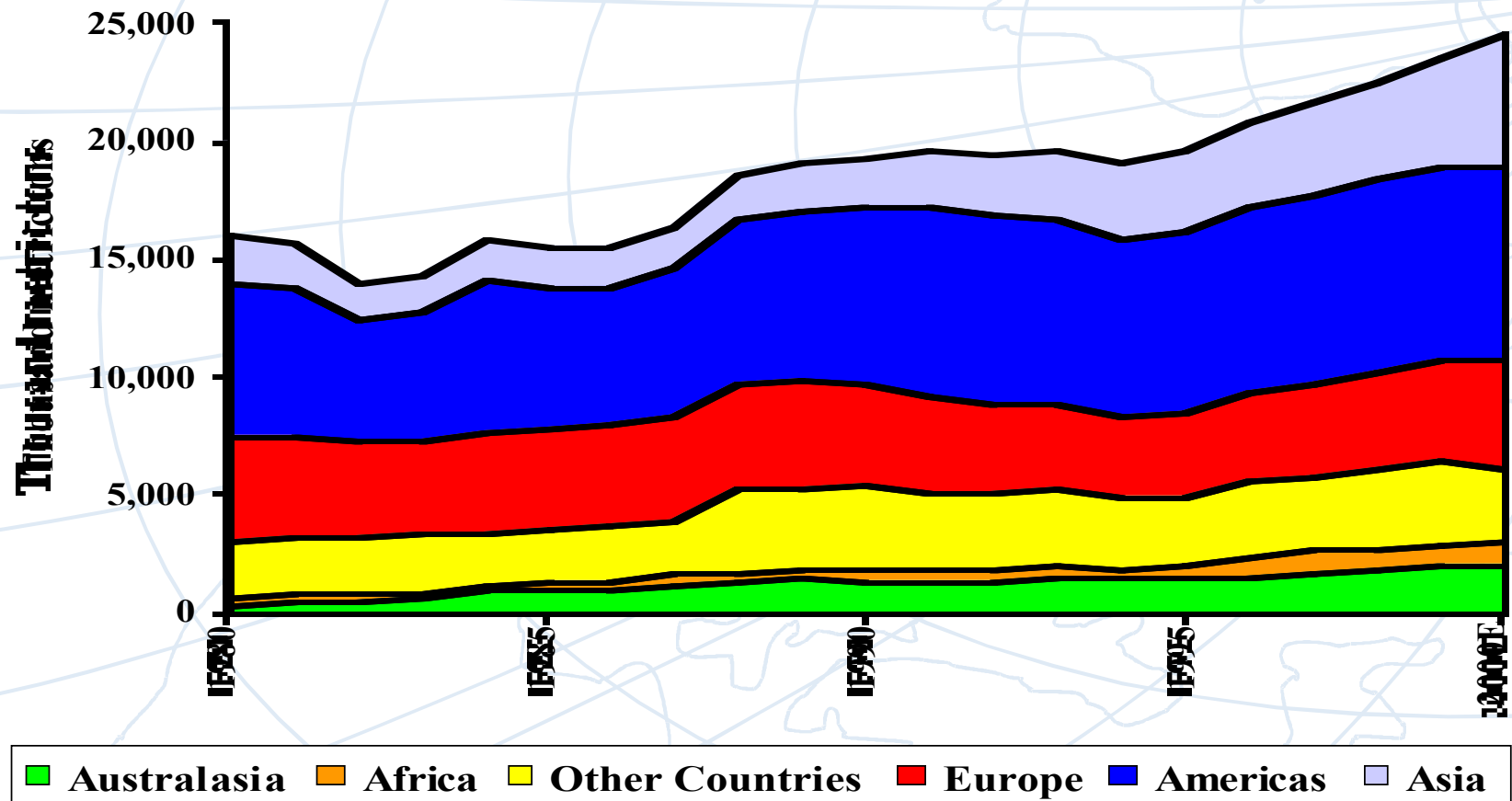
1980-2000E CAGR: 2.72%



Source: Department of Energy, *Monthly Energy Review*, Merrill Lynch estimates

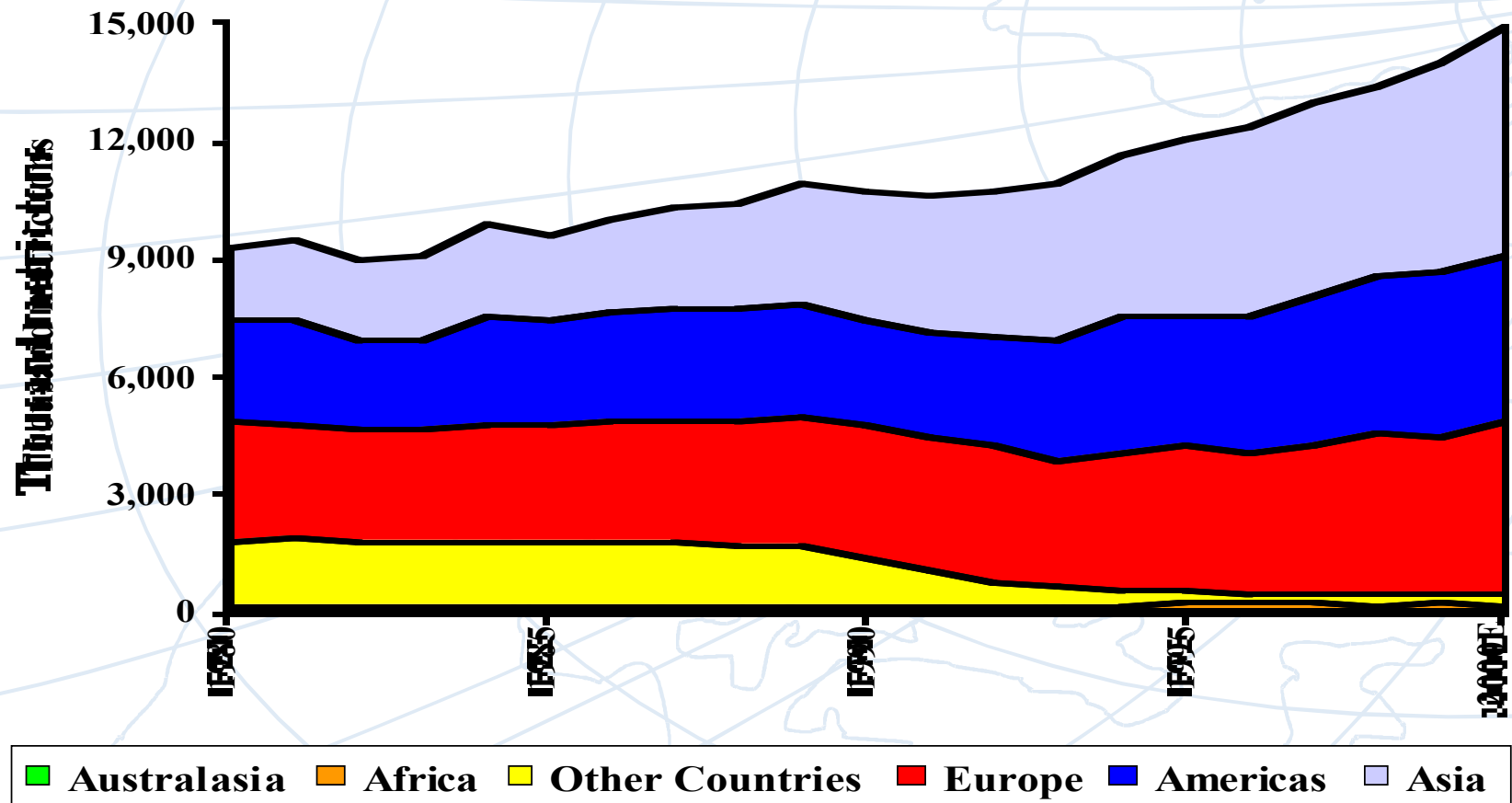
Regional Consumption Trends

Aluminum Consumption By Region



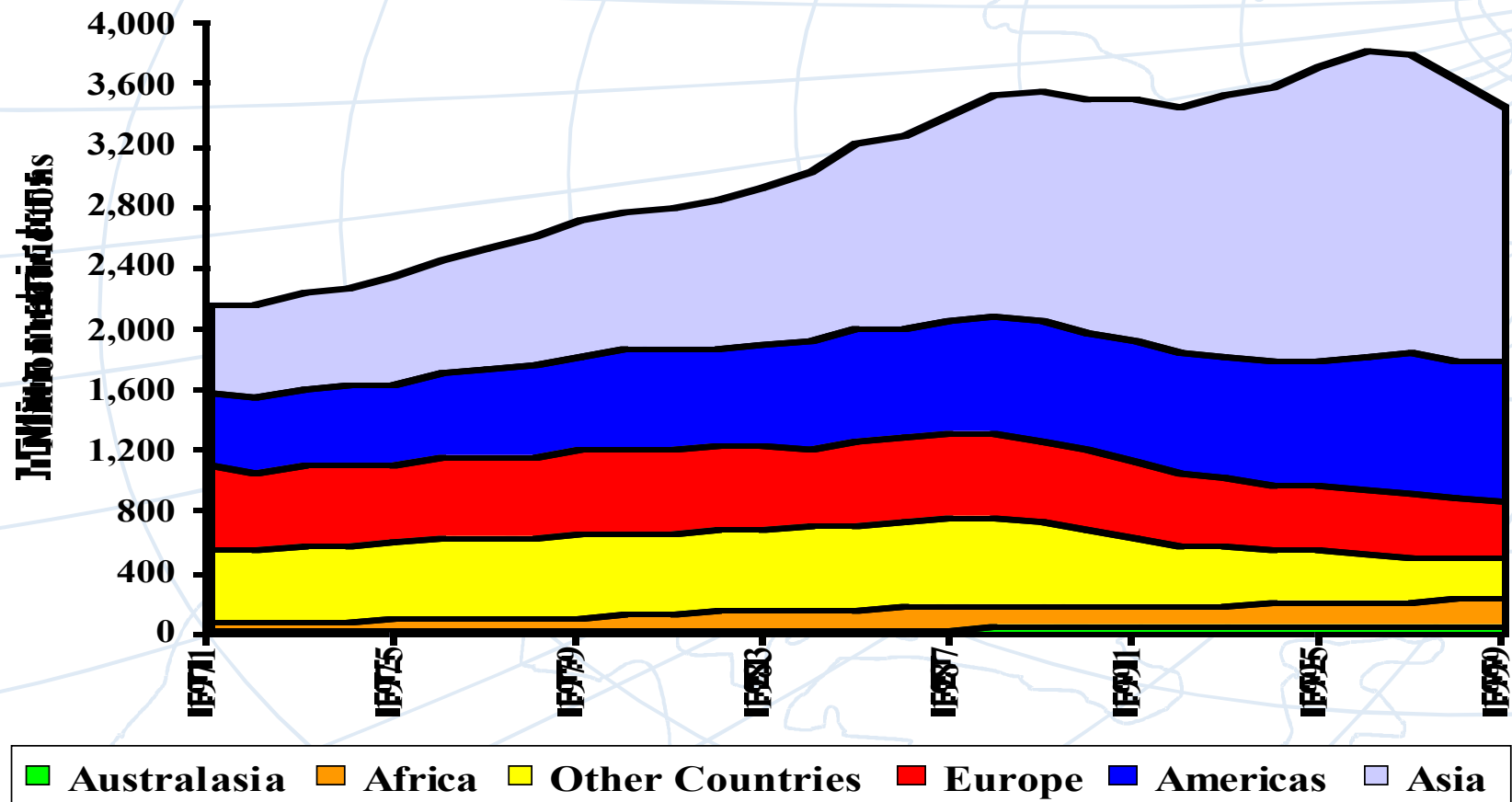
Source: Metallgesellschaft AG, WBMS, Merrill Lynch

Copper Consumption By Region



Source: Metallgesellschaft AG, WBMS, Merrill Lynch

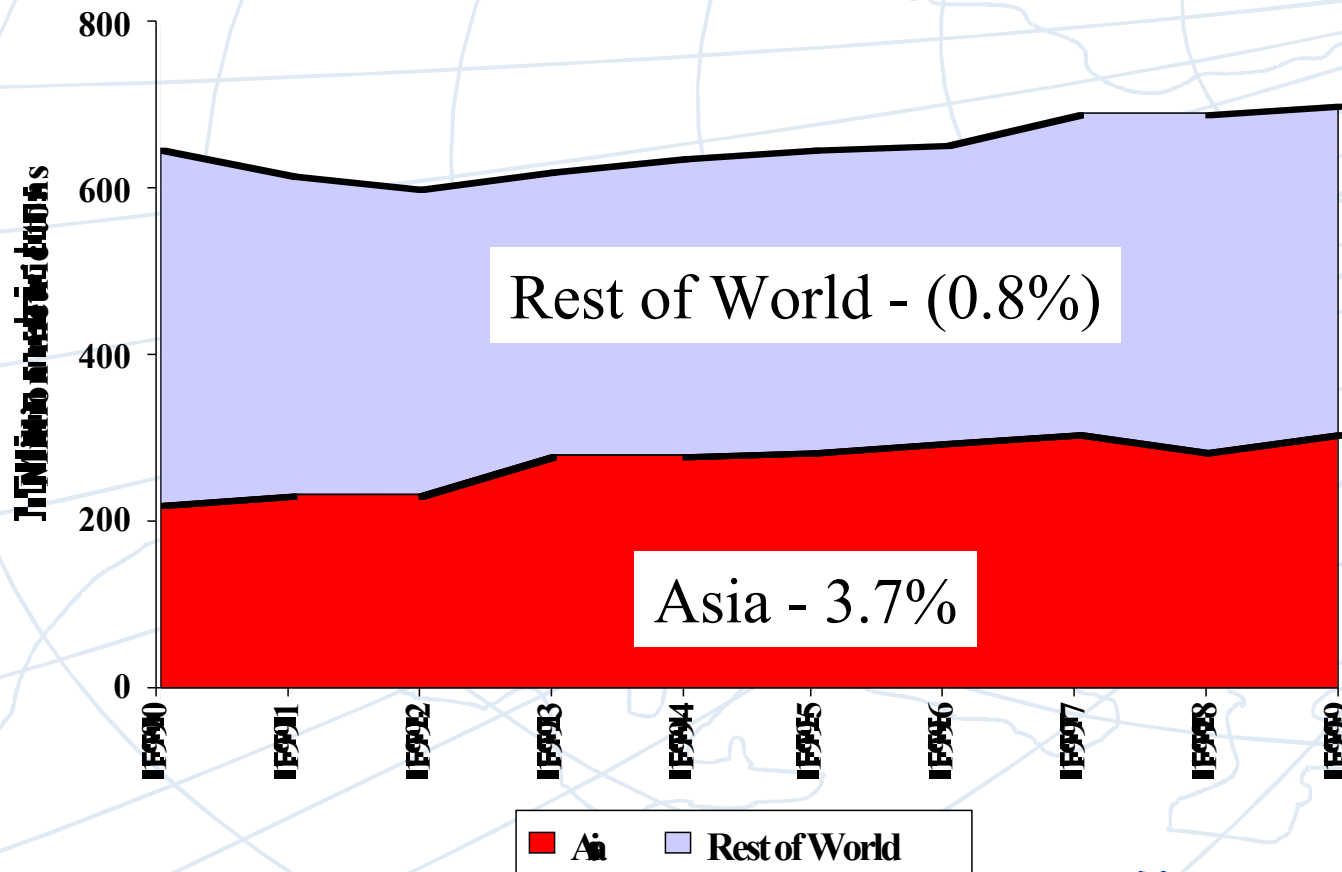
Coal Consumption By Region



Source: IEA Statistics - Coal Information 2000

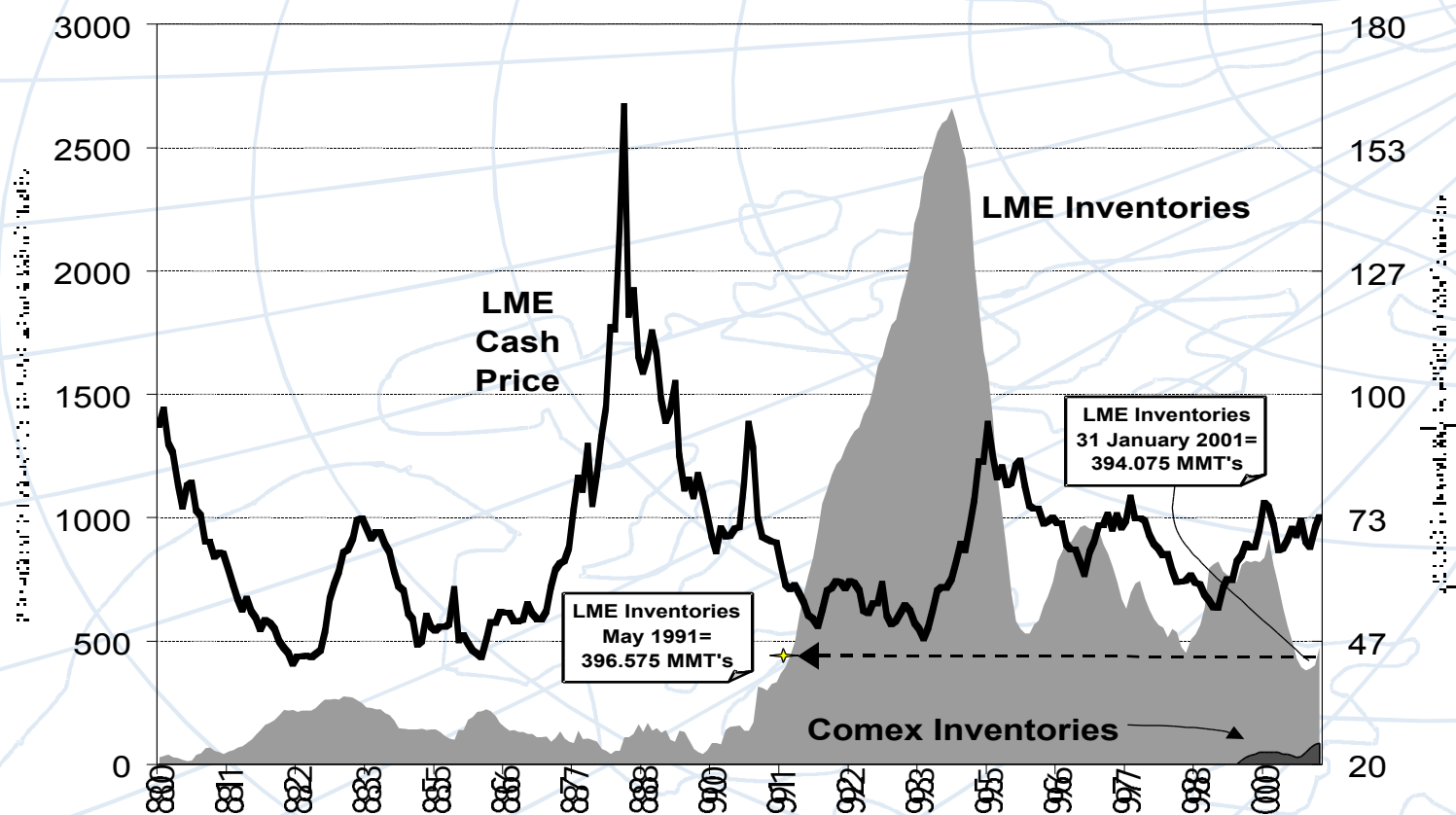
Finished Steel Consumption By Region

Compound Annual Growth - Asia versus Rest of World

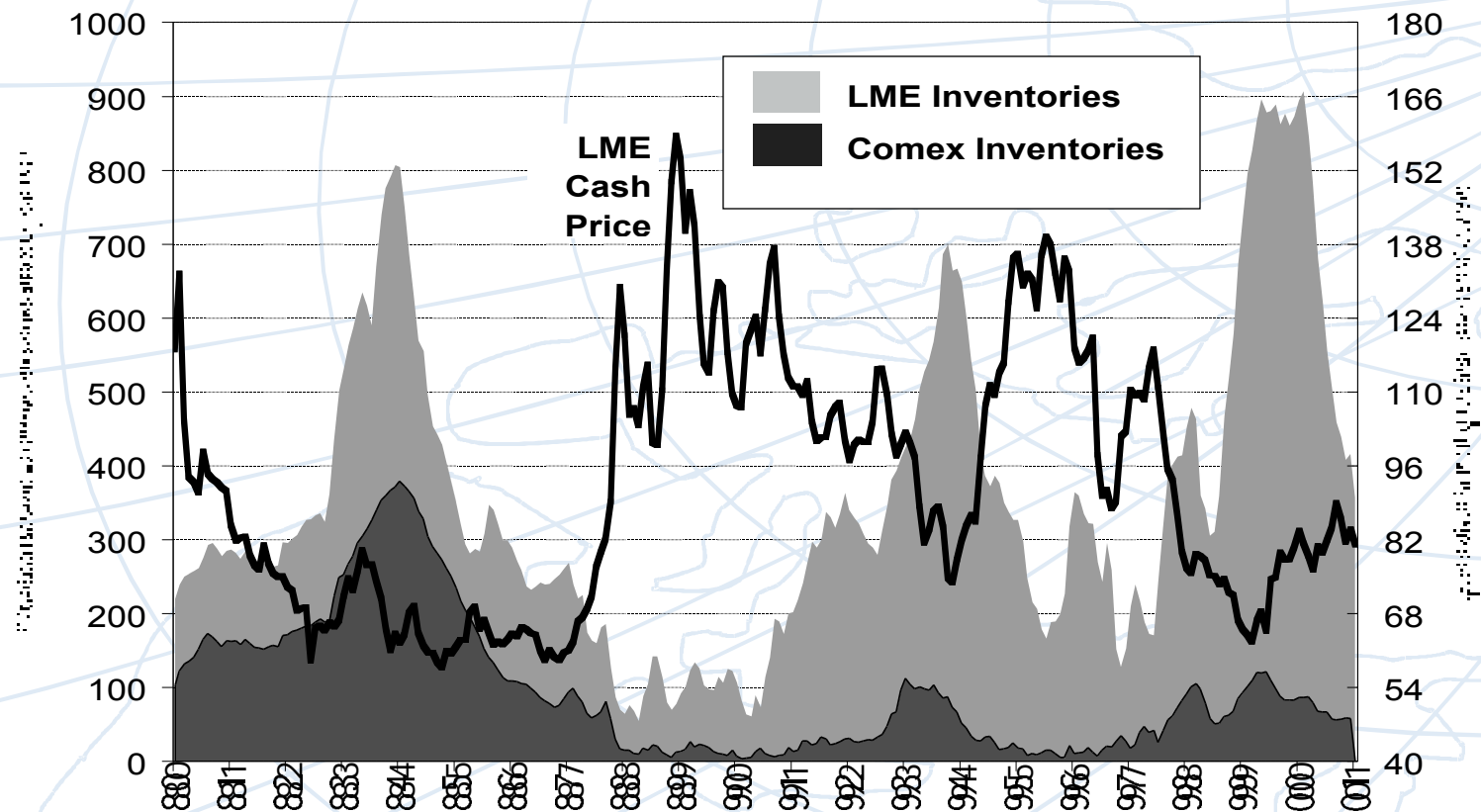


Price & Inventory Trends

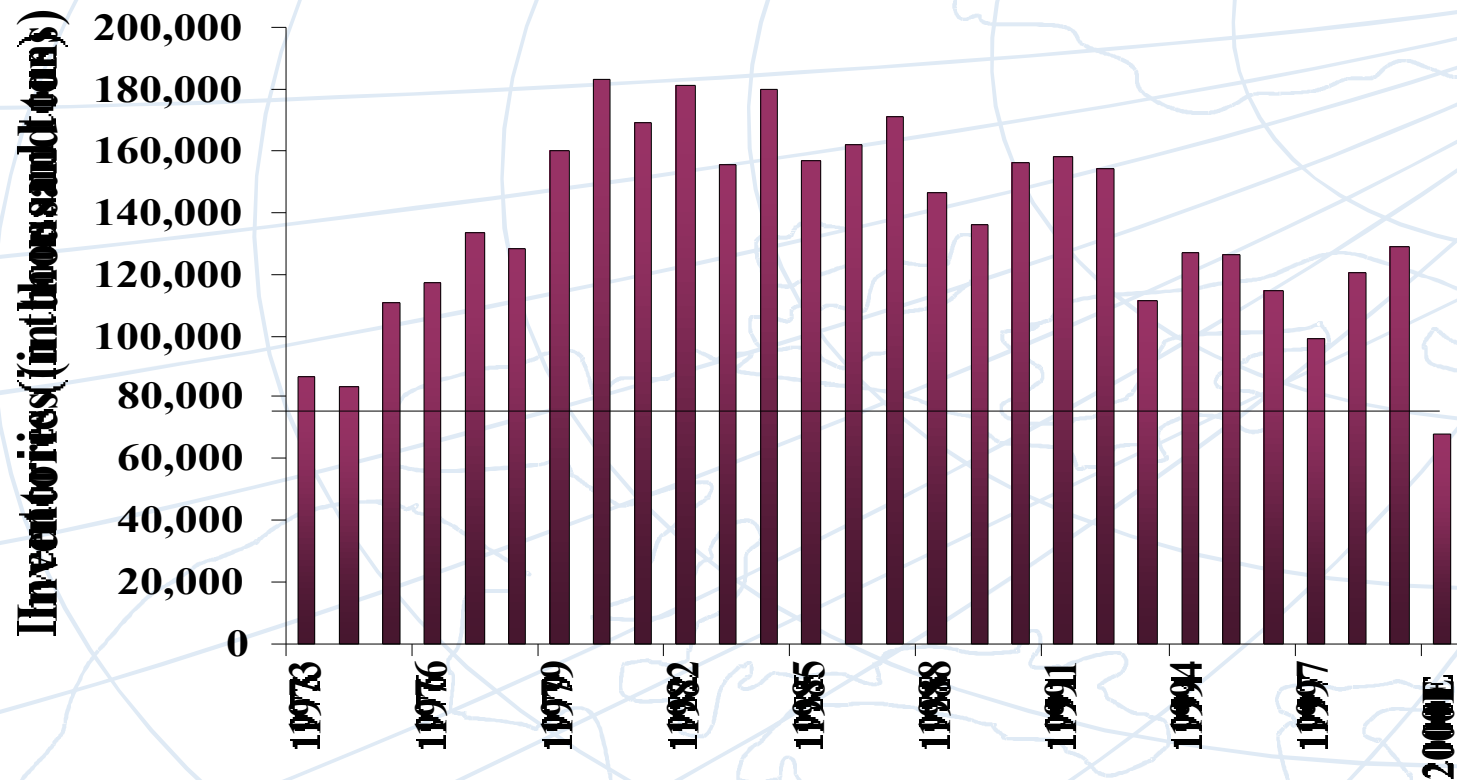
LME Aluminum Price and Exchange Inventories



LME Copper Price and Exchange Inventories

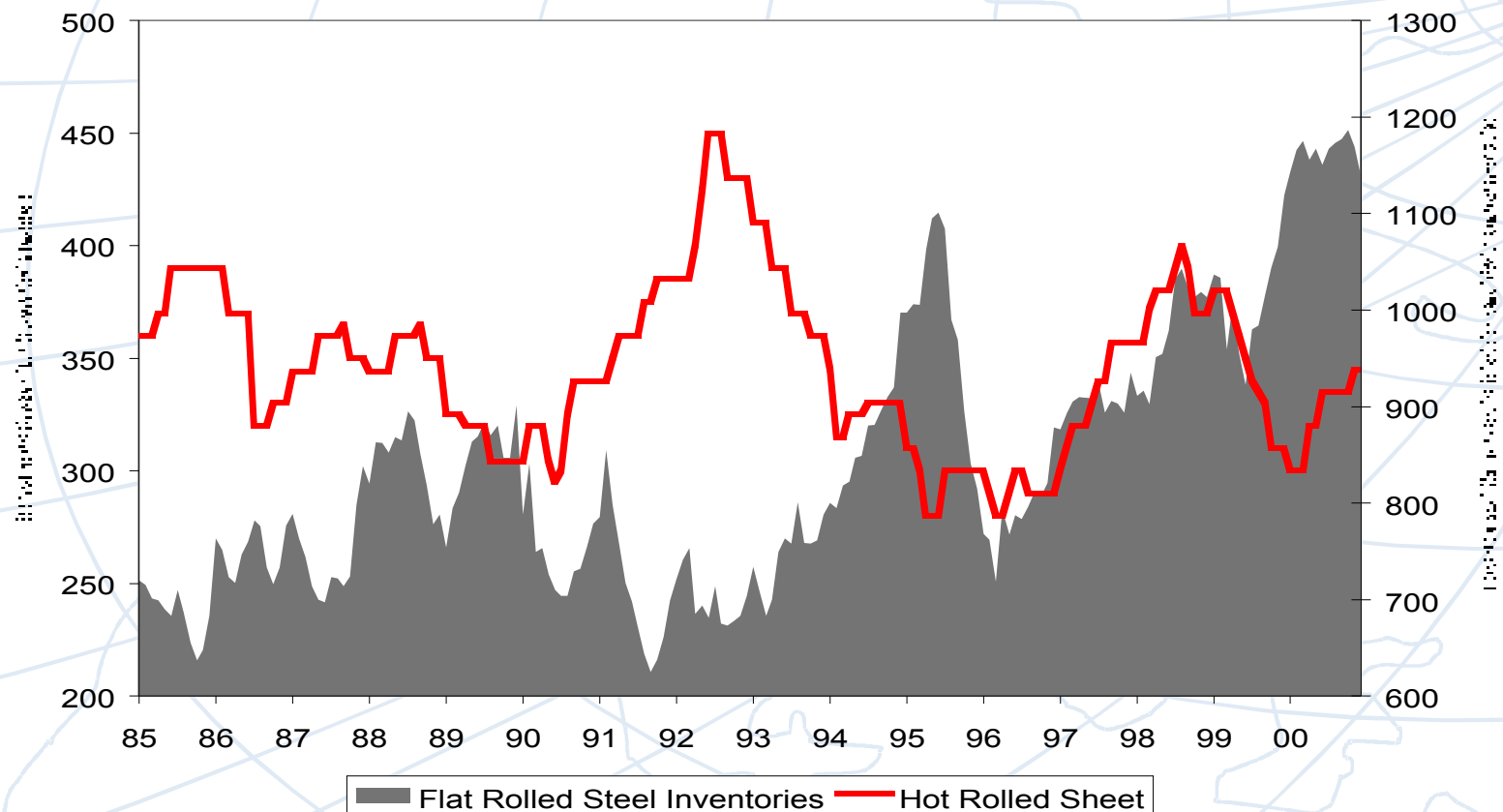


Coal Year-End Inventories Held at U.S. Utilities



Source: Department of Energy, *Monthly Energy Review*, Merrill Lynch estimates

Hot Rolled Sheet Price and Service Center Inventories



Source: Steel Service Center Institute, Purchasing Magazine

Industry Funda-metals

Global Metal Demand Outlook

- A slowing **U.S.** economy does not necessarily translate into declining **global** metal consumption
- Increasing importance of the Asian region should continue to fuel global metal consumption growth
- New economy demands drive incremental consumption increases, particularly for coal and copper

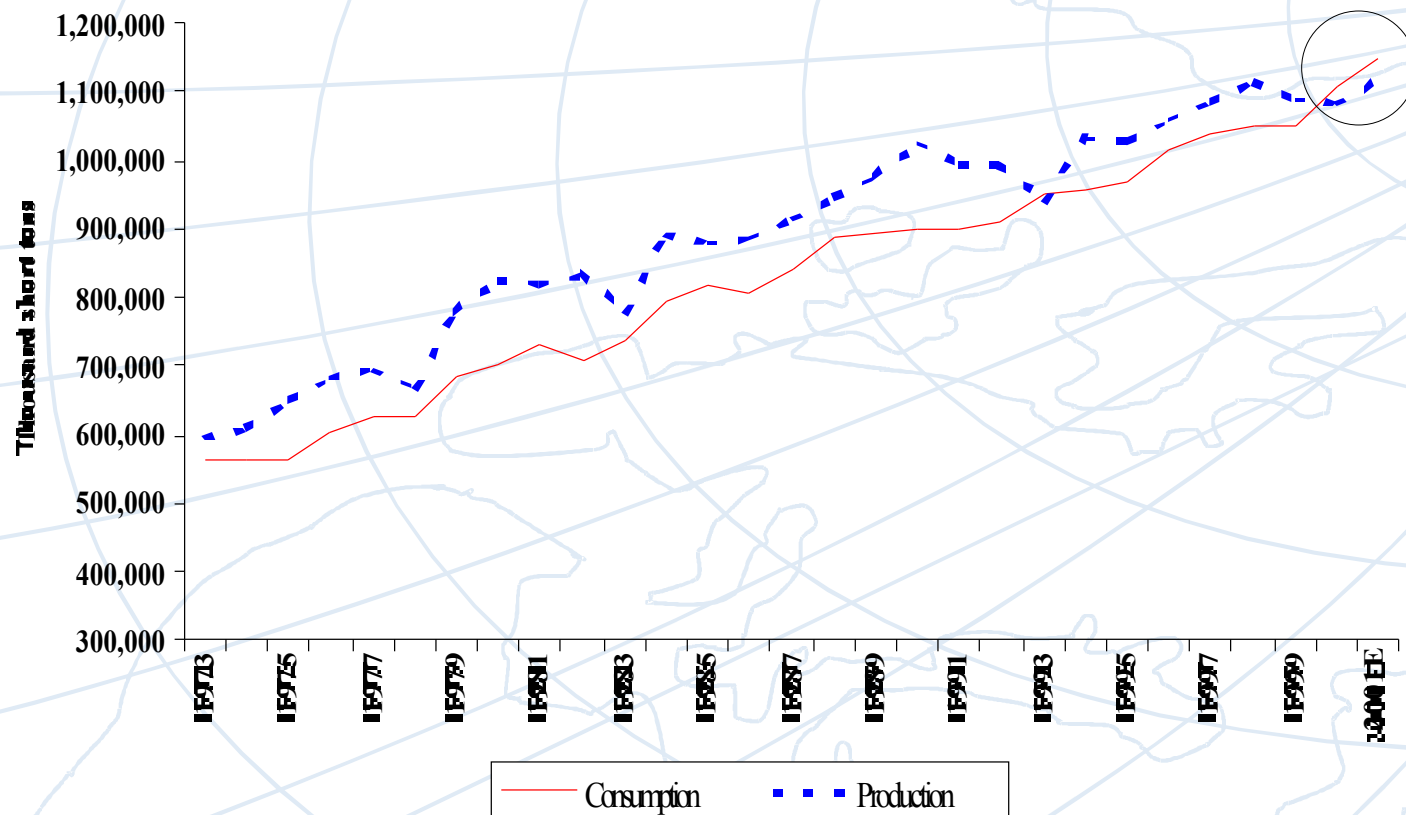
Global Aluminum Supply/Demand Balance (Thousand Metric Tons)

	<u>1999</u>	<u>2000E</u>	<u>2001E</u>	<u>2002E</u>
Global Production	23,629	24,397	24,782	25,620
Global Consumption	<u>23,421</u>	<u>24,647</u>	<u>25,368</u>	<u>26,129</u>
Supply Less Demand	207	(249)	(586)	(509)
Weeks Supply	8.9	7.3	6.3	6.1

Global Copper Supply/Demand Balance (Thousand Metric Tons)

	<u>1999</u>	<u>2000E</u>	<u>2001E</u>	<u>2002E</u>
Global Production	14,466	14,528	15,515	16,191
Global Consumption	<u>14,036</u>	<u>14,993</u>	<u>15,671</u>	<u>16,259</u>
Supply Less Demand	430	(464)	(156)	(68)
Weeks Supply	4.7	2.9	2.2	1.9

U.S. Coal Supply/Demand Balance



Source: Department of Energy, *Monthly Energy Review*, Merrill Lynch estimates



Current U.S. Production Constraints

- Energy Crisis Hits U.S. Aluminum and Copper Production
 - Aluminum Smelter Closures -
 - Over 1 million metric tons, or 62% of the capacity in the Pacific Northwest, curtailed
 - Risk of Copper Mine Closures
 - Phelps Dodge may shut up to 300kmt of copper mine production, or about 2.3% of global output.
- Permitting Challenges Impacting U.S. Coal Production

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